6 Appendices

6.1 Simulation Stress Test

6.1.1 Scene Dataset

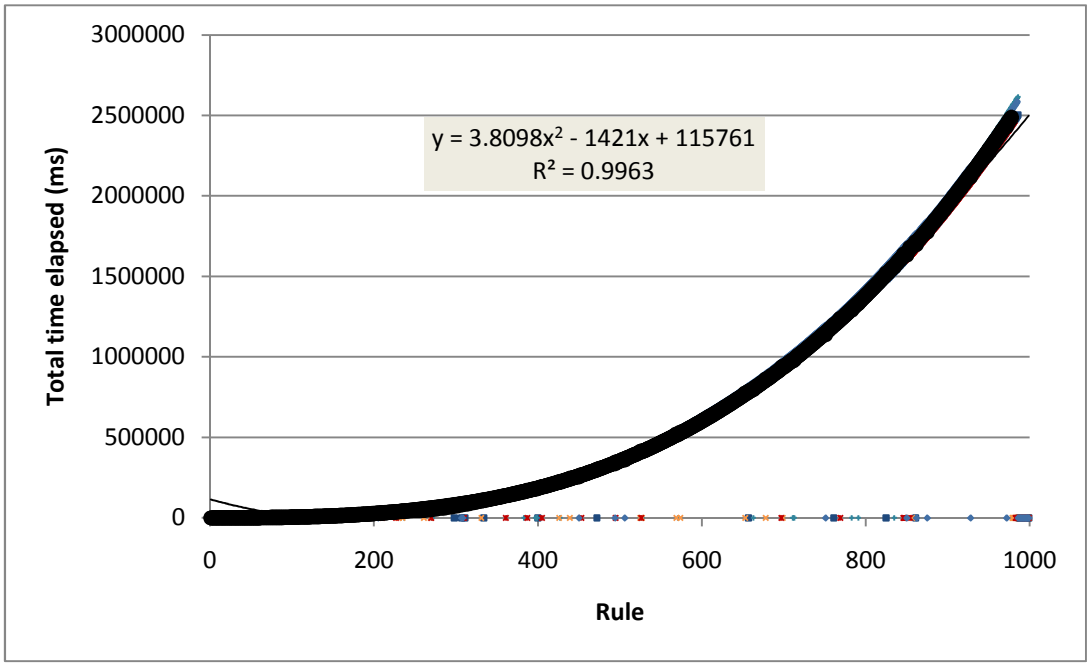

Figure 6-1 A simulation with a 20% chance of exceptions and a 10% chance of rules based on classifications.

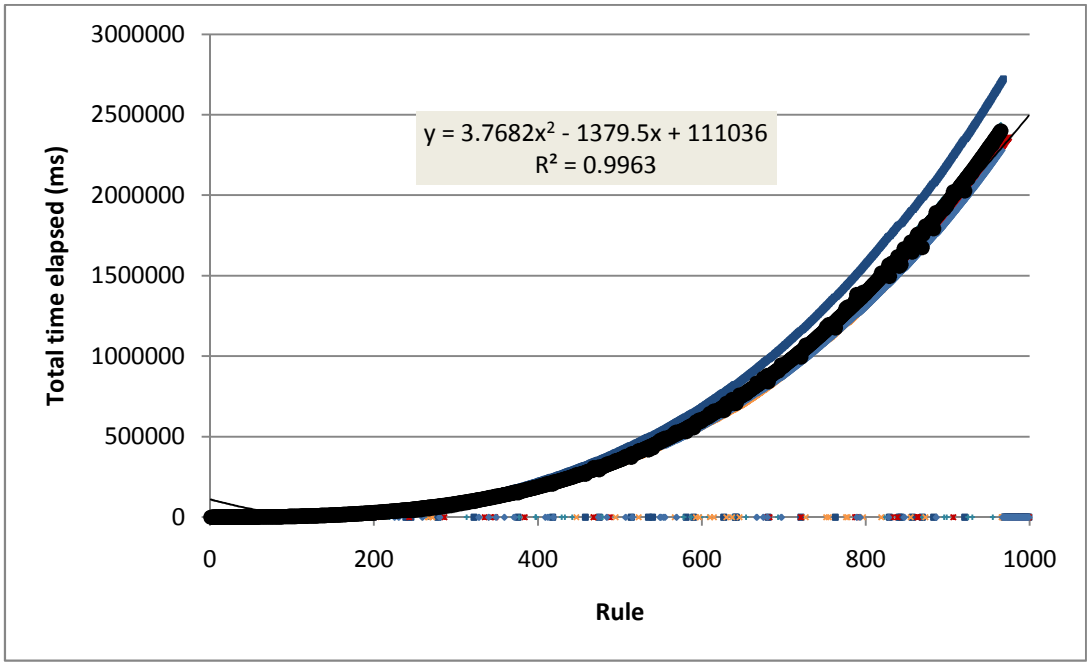

Figure 6-2 A simulation with a 20% chance of exceptions and a 20% chance of rules based on classifications.

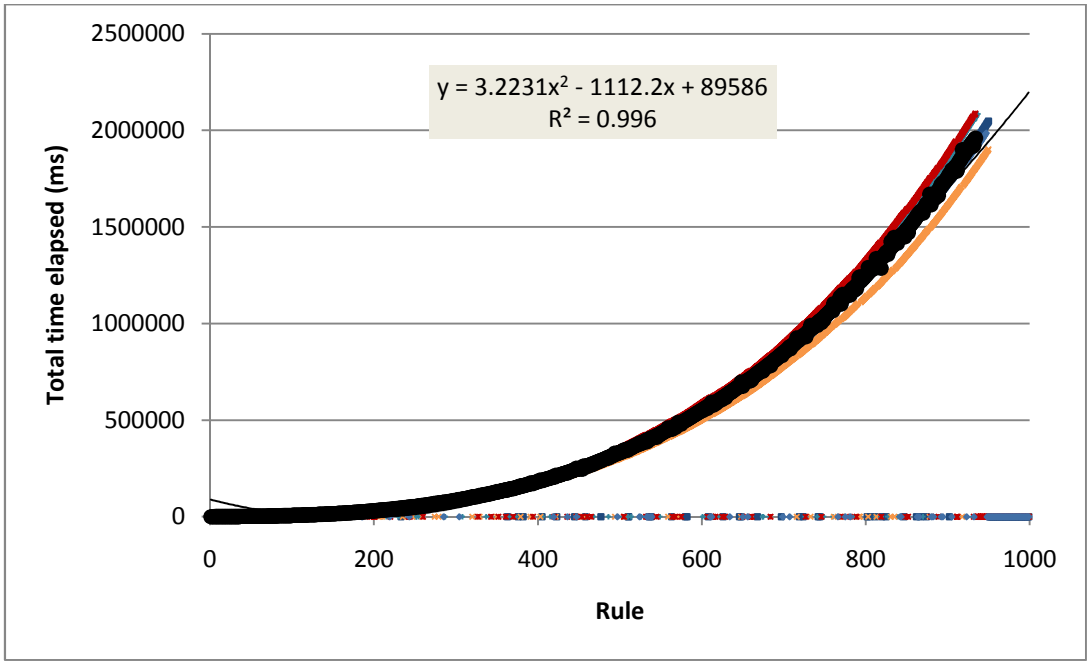

Figure 6-3 A simulation with a 20% chance of exceptions and a 40% chance of rules based on classifications.

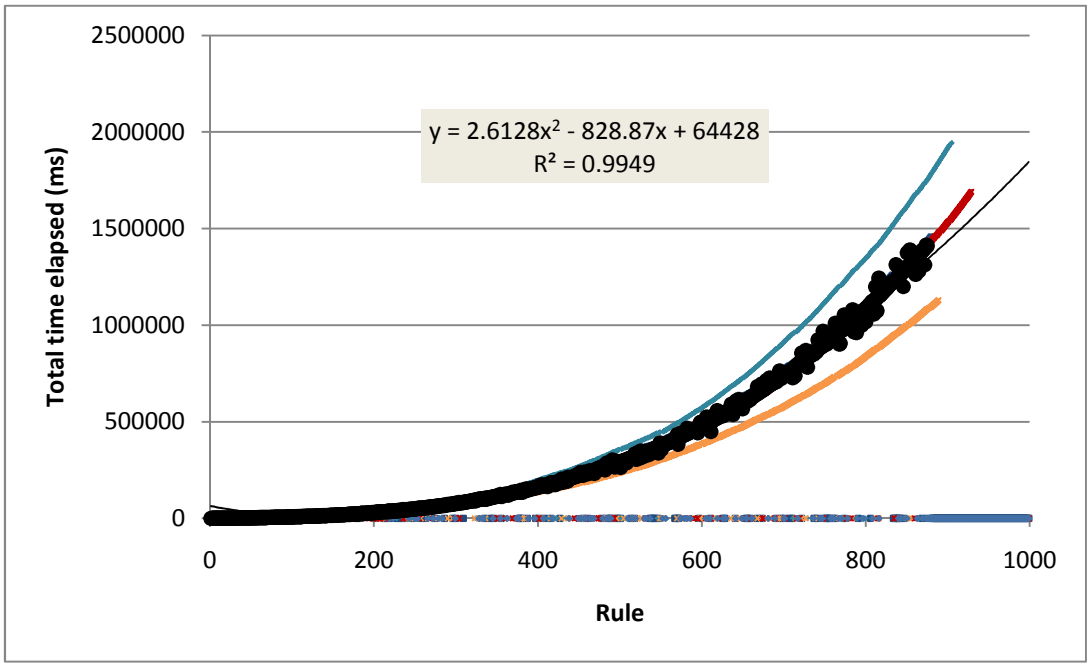

Figure 6-4 A simulation with a 20% chance of exceptions and an 80% chance of rules based on classifications.

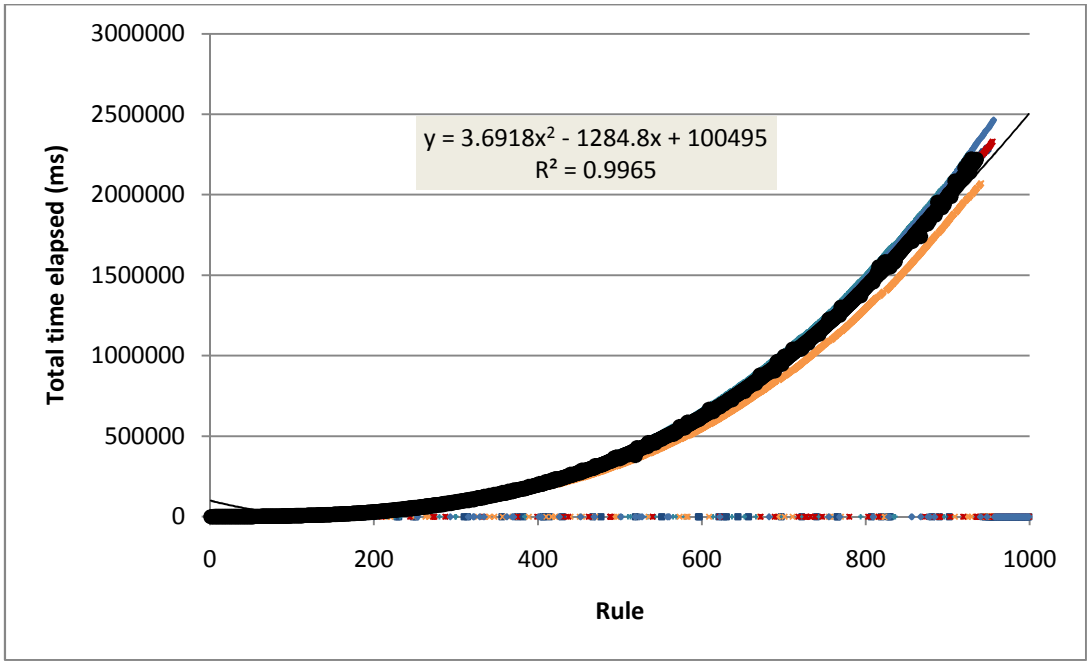

Figure 6-5 A simulation with a 40% chance of exceptions and a 20% chance of rules based on classifications.

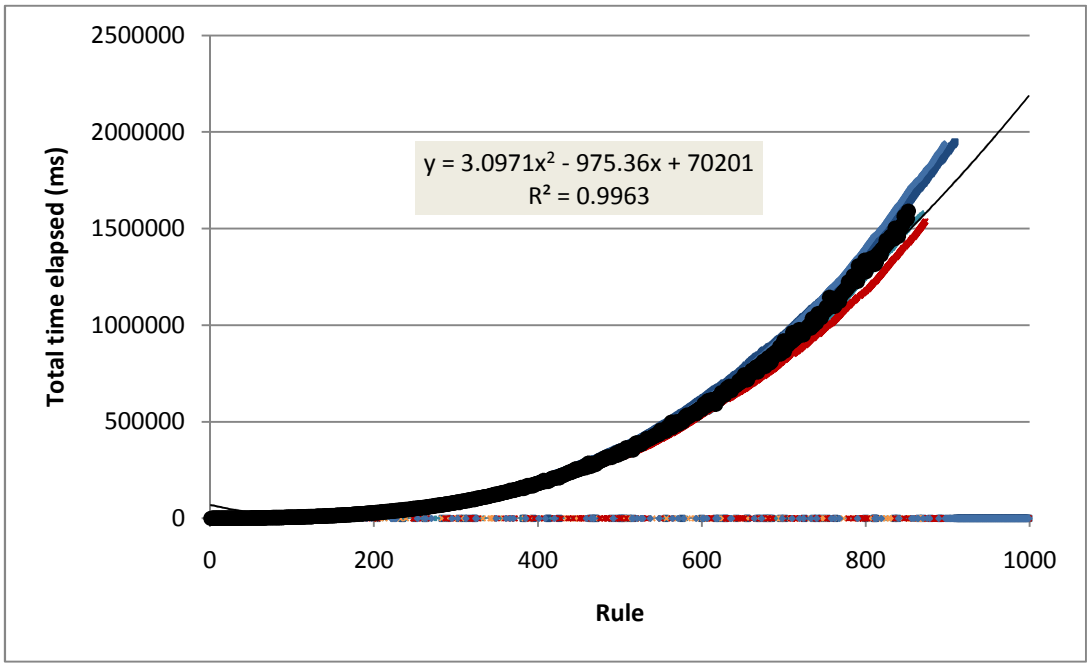

Figure 6-6 A simulation with a 40% chance of exceptions and a 40% chance of rules based on classifications.

6.1.2 Enron Dataset

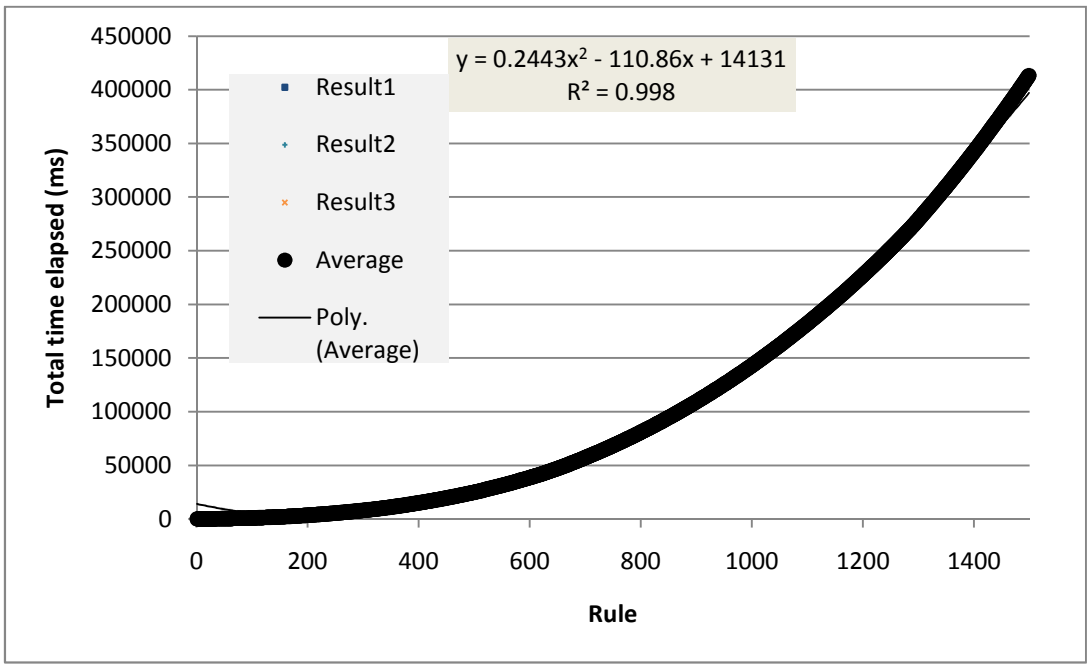

Figure 6-7 A benchmark simulation, with 20% chance of exceptions and no rules based on classifications.

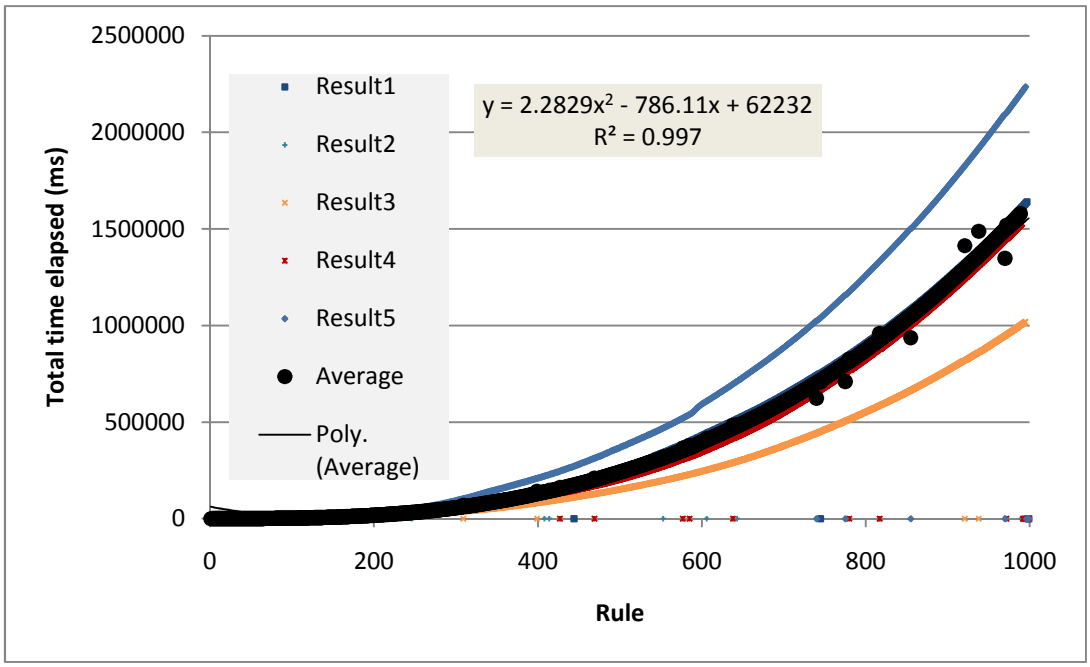

Figure 6-8 A simulation with a 10% chance of exceptions and a 10% chance of rules based on classifications.

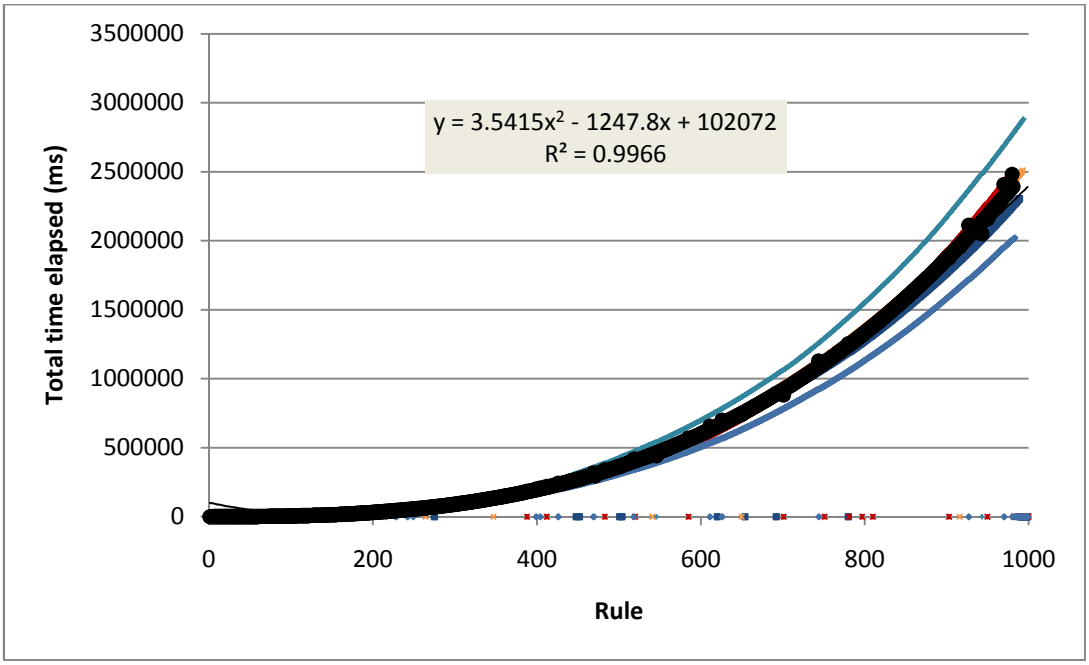

Figure 6-9 A simulation with a 10% chance of exceptions and a 20% chance of rules based on classifications.

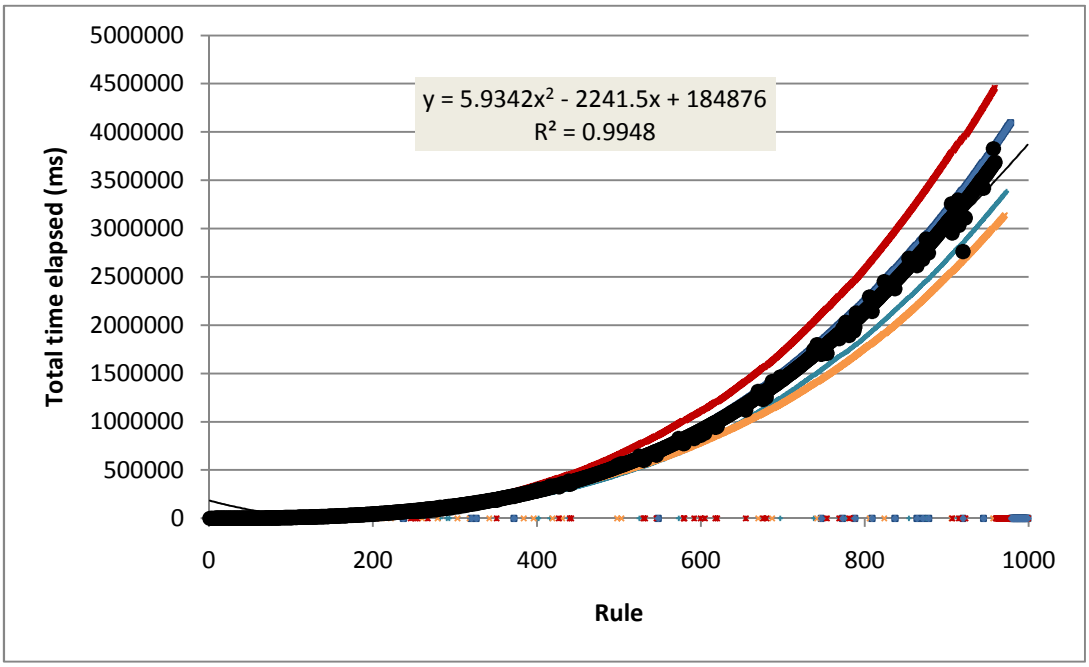

Figure 6-10 A simulation with a 10% chance of exceptions and a 40% chance of rules based on classifications.

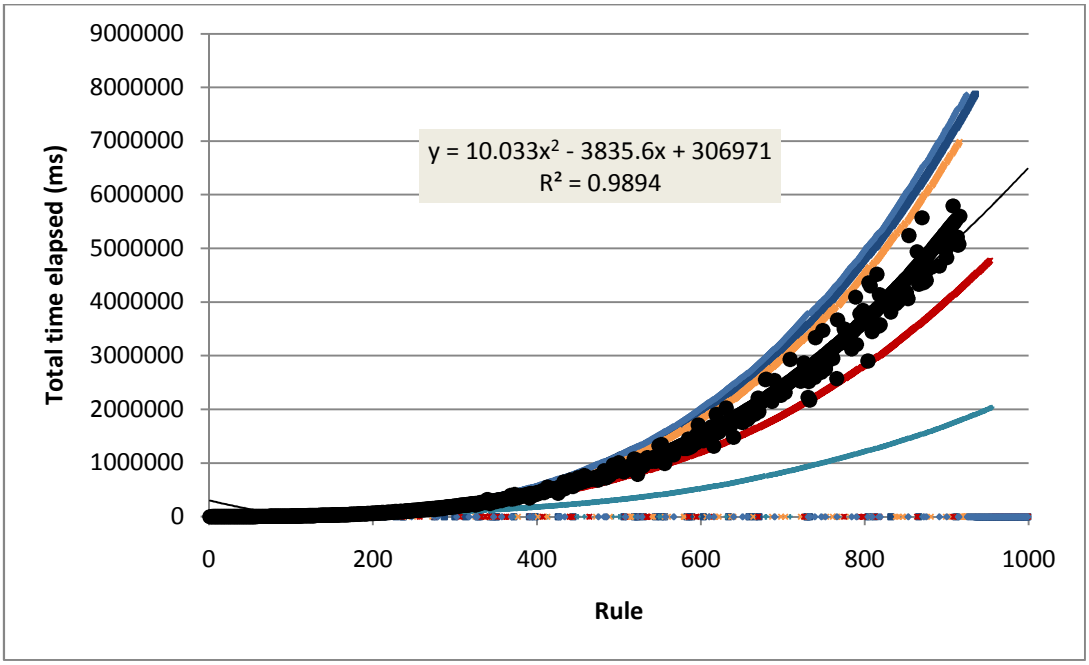

Figure 6-11 A simulation with a 10% chance of exceptions and an 80% chance of rules based on classifications.

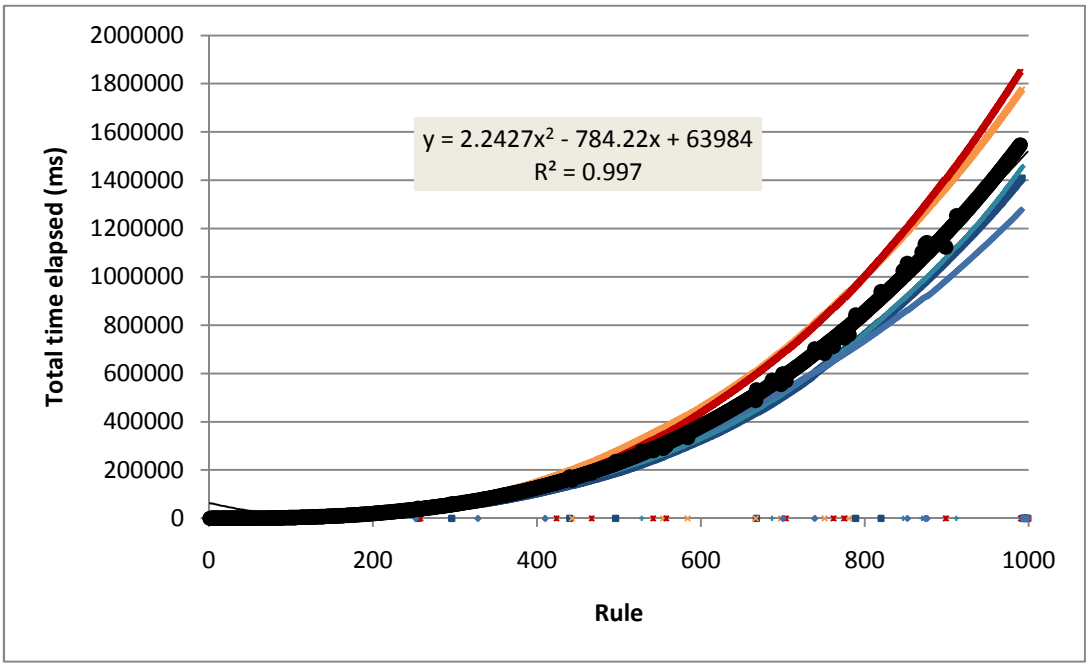

Figure 6-12 A simulation with a 20% chance of exceptions and a 10% chance of rules based on classifications.

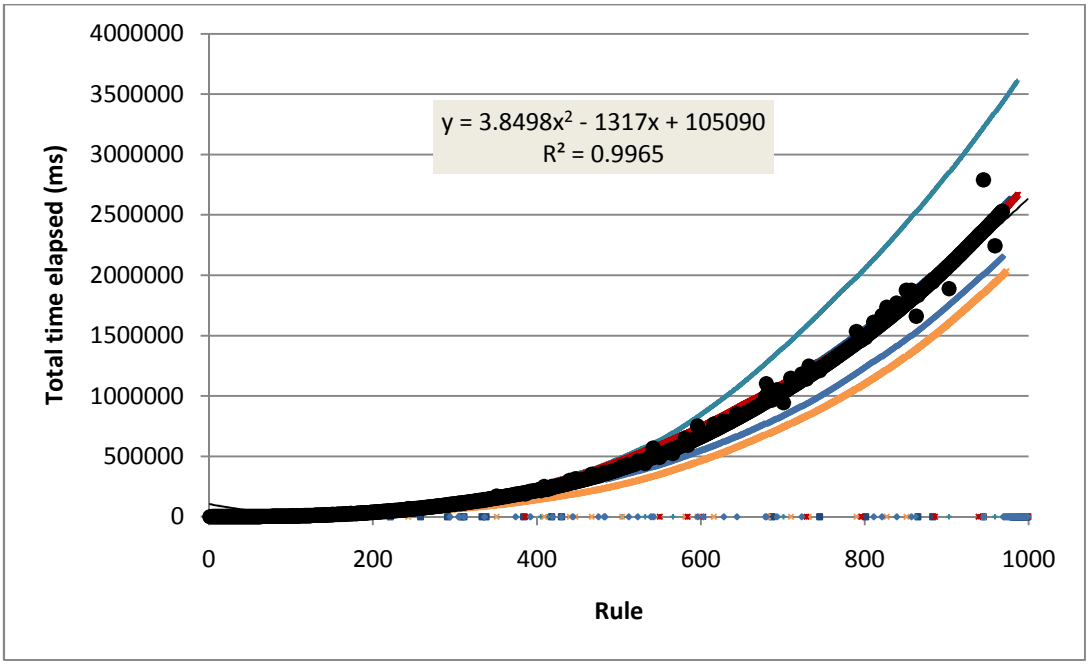

Figure 6-13 A simulation with a 20% chance of exceptions and a 20% chance of rules based on classifications.

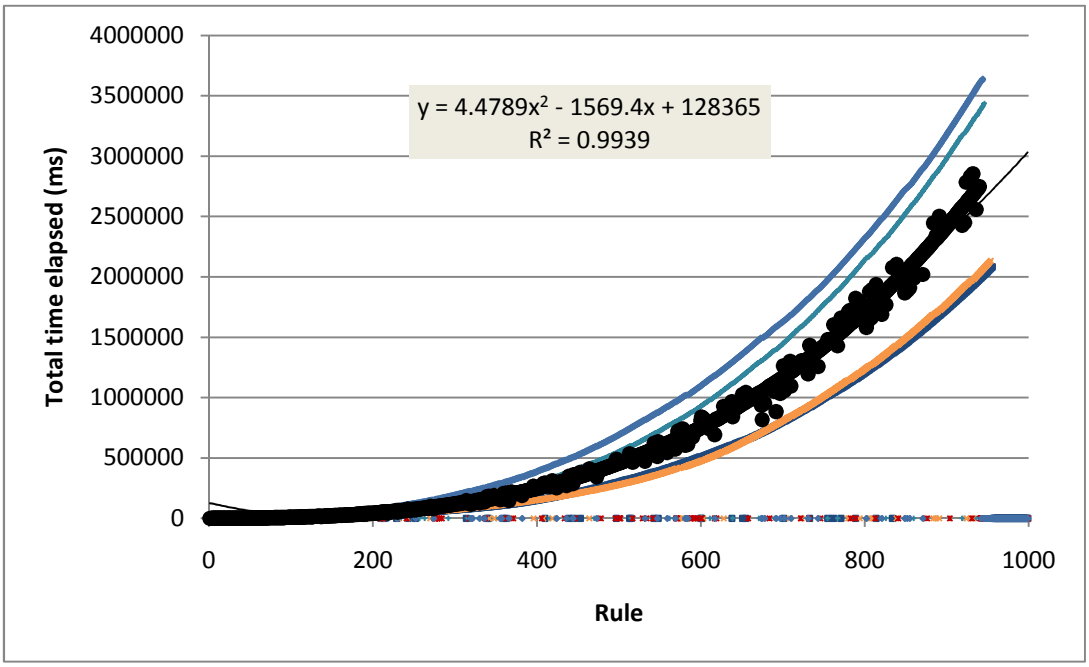

Figure 6-14 A simulation with a 20% chance of exceptions and a 40% chance of rules based on classifications.

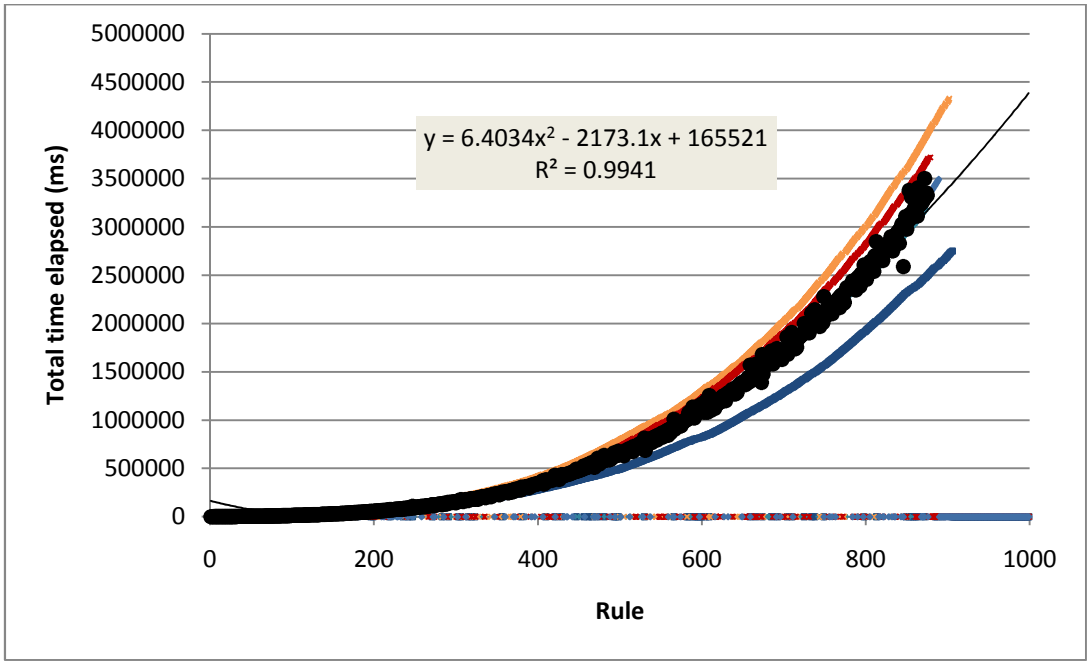

Figure 6-15 A simulation with a 20% chance of exceptions and an 80% chance of rules based on classifications.

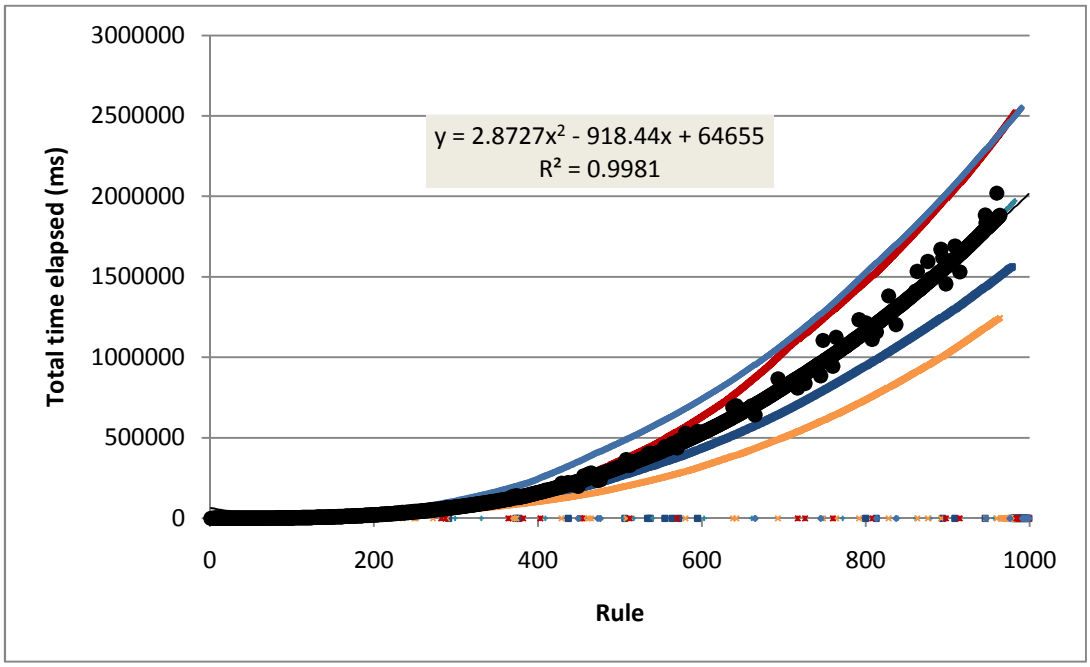

Figure 6-16 A simulation with a 40% chance of exceptions and a 10% chance of rules based on classifications.

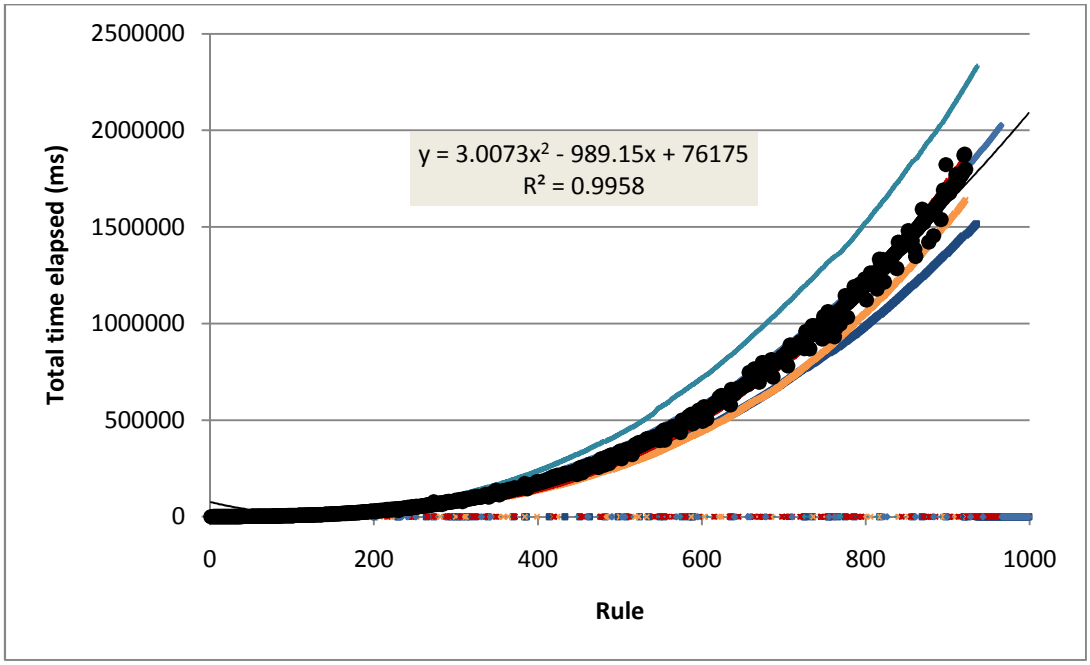

Figure 6-17 A simulation with a 40% chance of exceptions and a 20% chance of rules based on classifications.

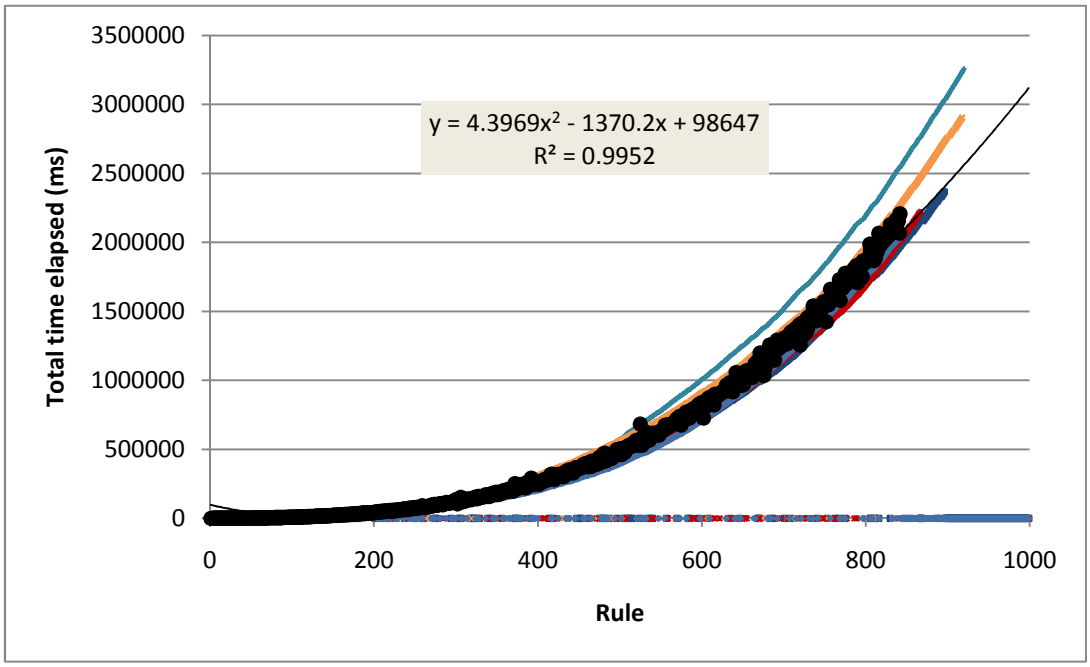

Figure 6-18 A simulation with a 40% chance of exceptions and a 40% chance of rules based on classifications.

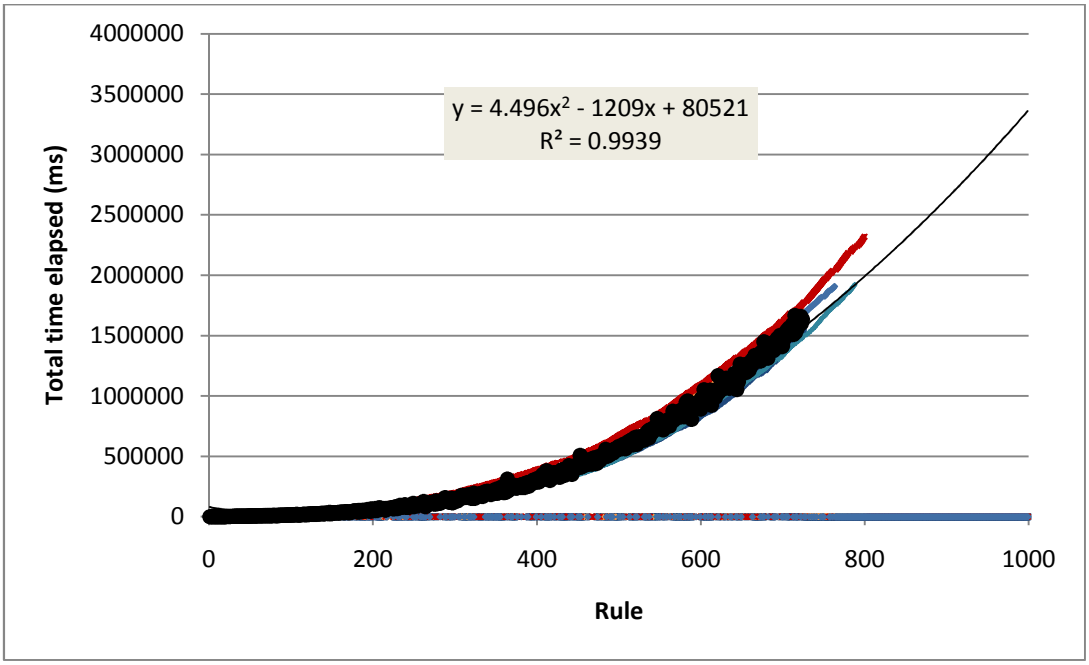

Figure 6-19 A simulation with a 40% chance of exceptions and an 80% chance of rules based on classifications.

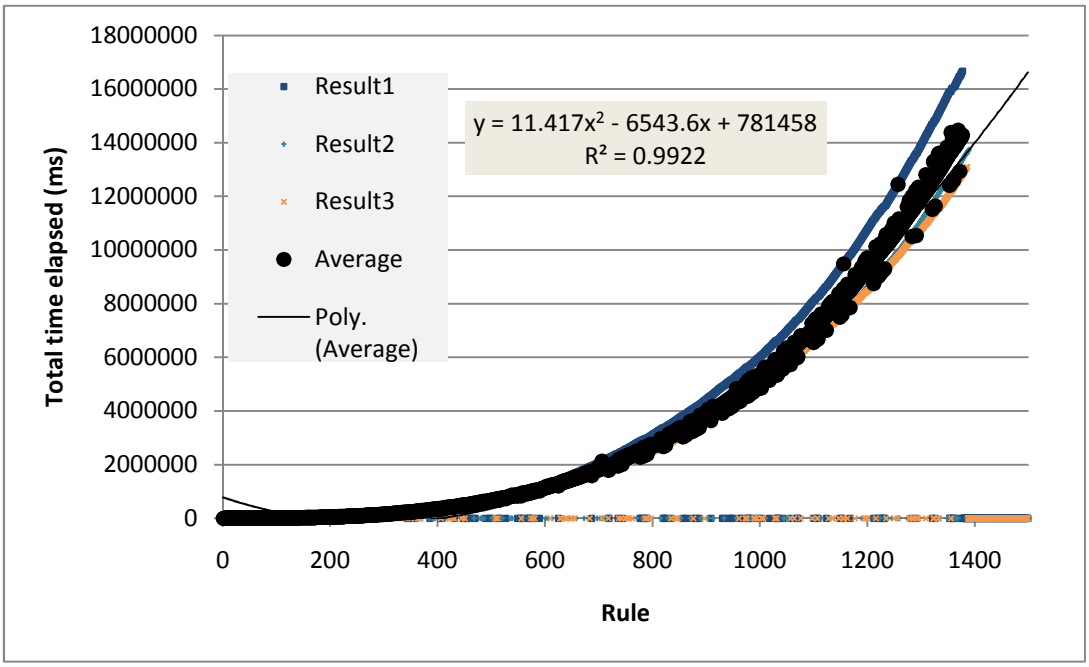

Figure 6-20 A benchmark simulation with a 20% chance of exceptions and a 50% chance of rules based on classifications.

6.1.3 Inference Performance

Graphs show the time taken to perform 100 inferences on a case at 9 equally spaced periods during each simulated stress test for the scene dataset. Note that the times are universally linear and corresponding to the number of rules in the system, although again we see the variability between runs increases as the number of rules based on classifications increase,

but this can be largely attributed to the number of rules being more variable presumably because more or less rules may be rejected due to cycles.

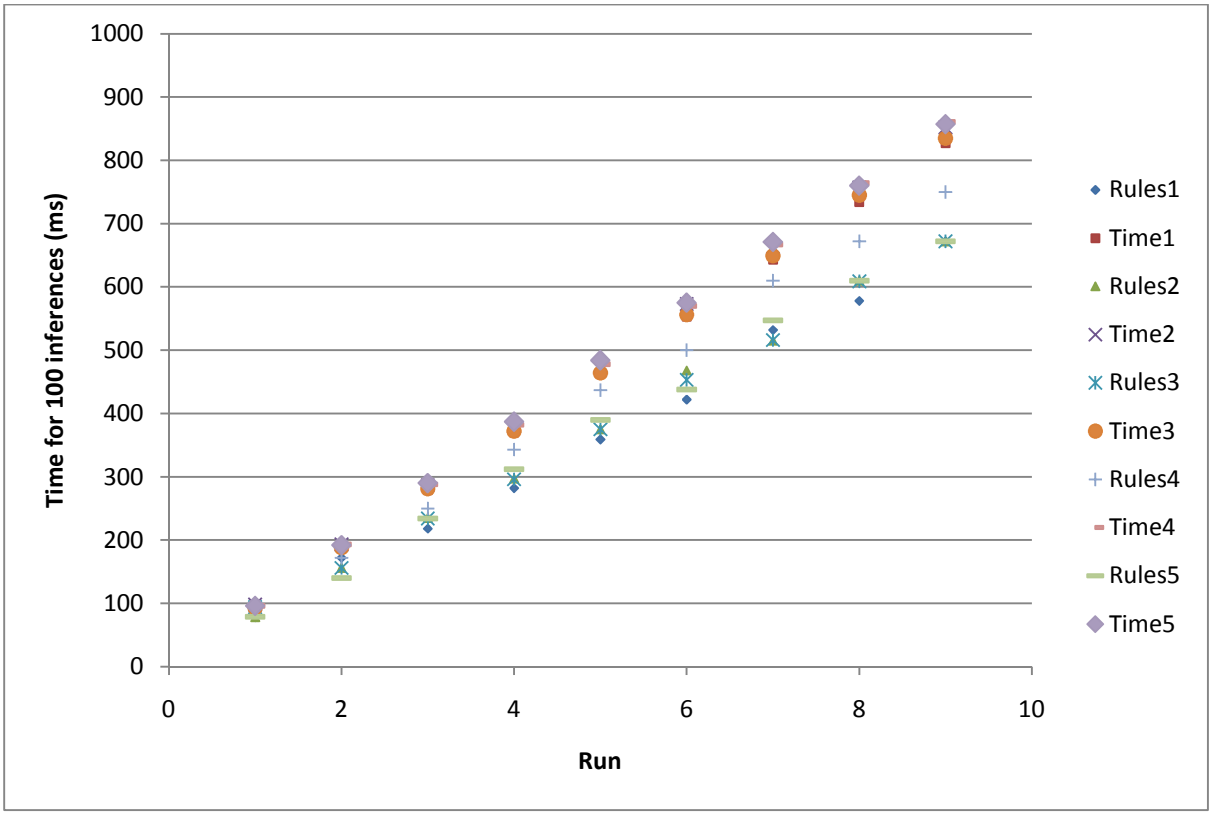

Figure 6-21 The number of rules in the system and the time taken to perform 100 inferences at 9 separate points during the simulated stress test runs for 10% exceptions and 20% classifications.

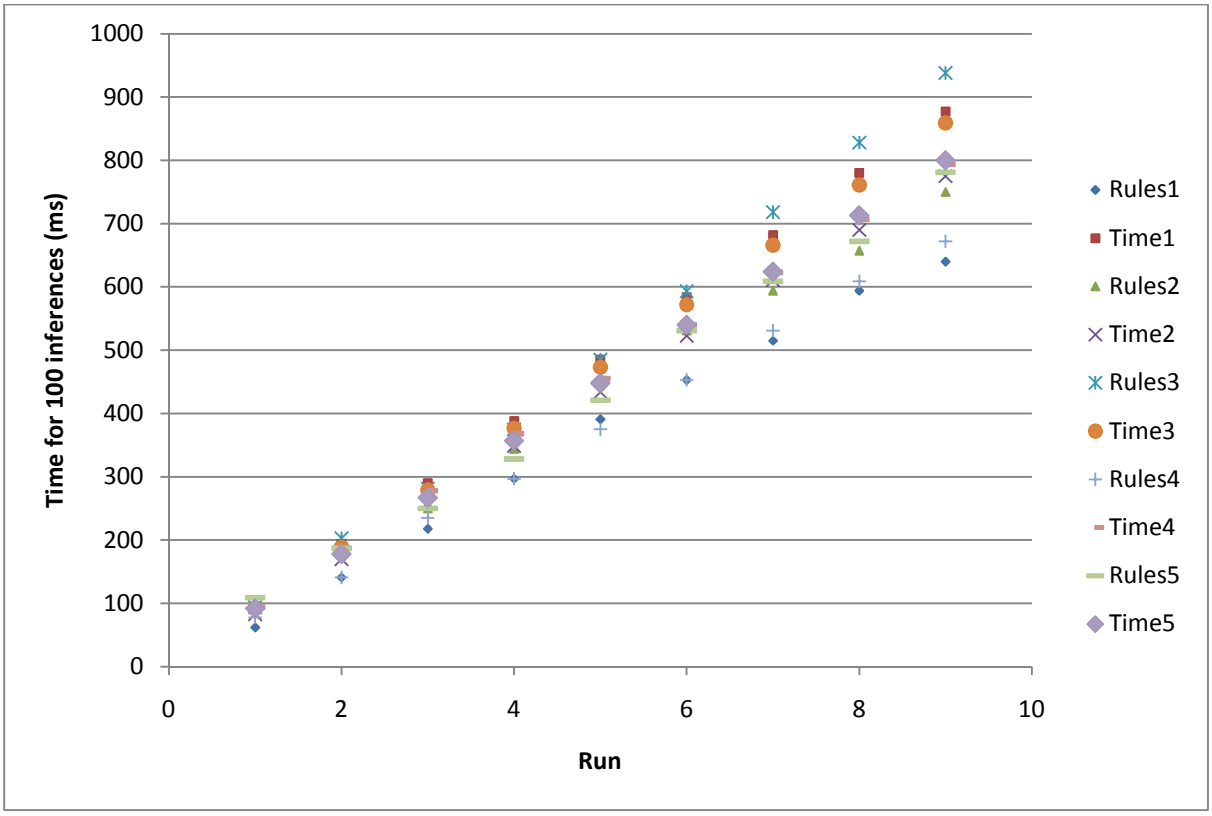

Figure 6-22 The number of rules in the system and the time taken to perform 100 inferences at 9 separate points during the simulated stress test runs for 10% exceptions and 40% classifications.

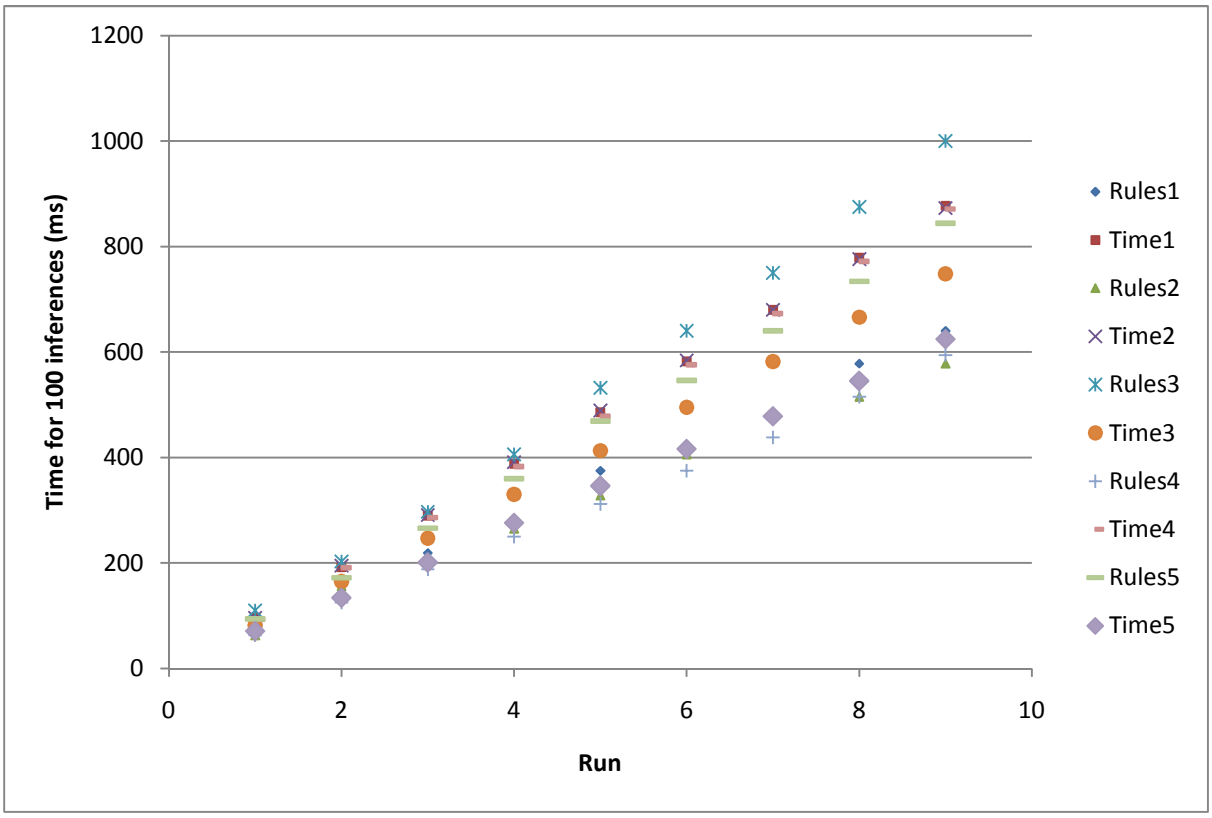

Figure 6-23 The number of rules in the system and the time taken to perform 1000 inferences at 9 separate points during the simulated stress test runs for 10% exceptions and 80% classifications.

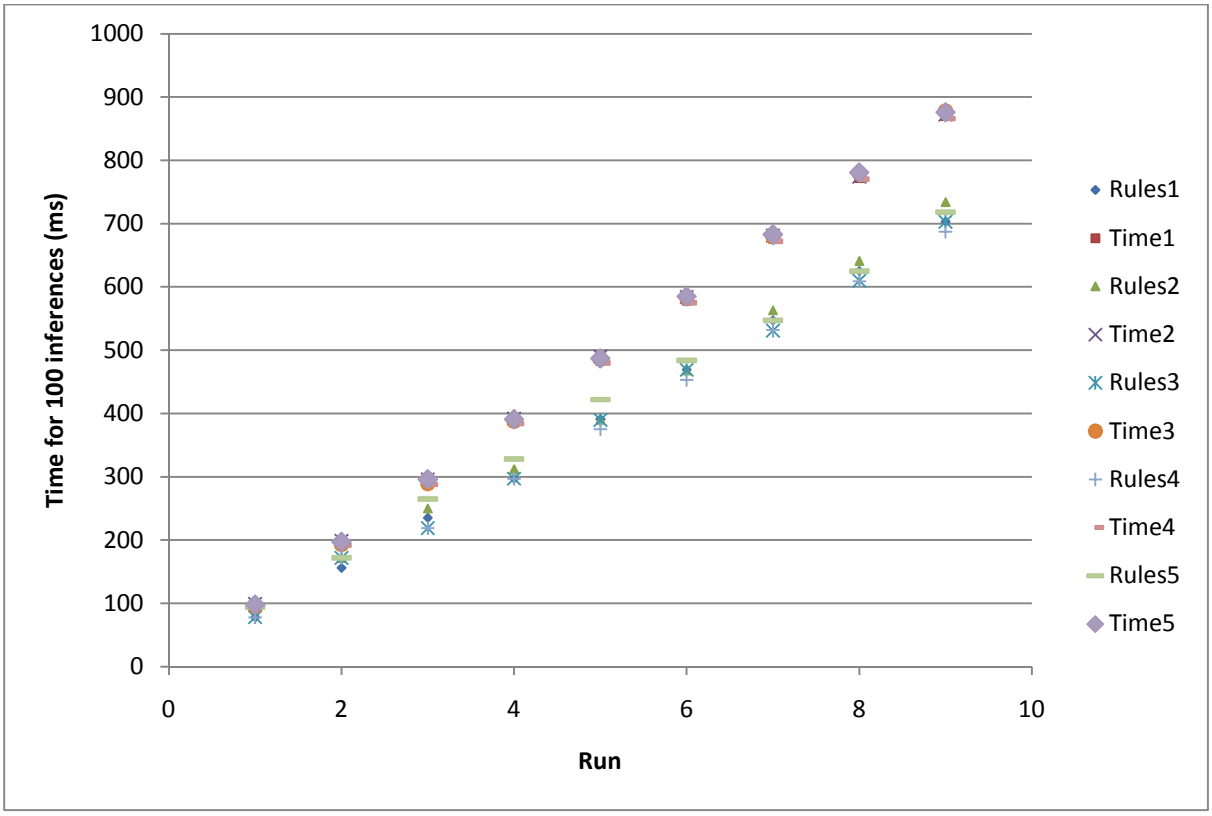

Figure 6-24 The number of rules in the system and the time taken to perform 1000 inferences at 9 separate points during the simulated stress test runs for 20% exceptions and 10% classifications.

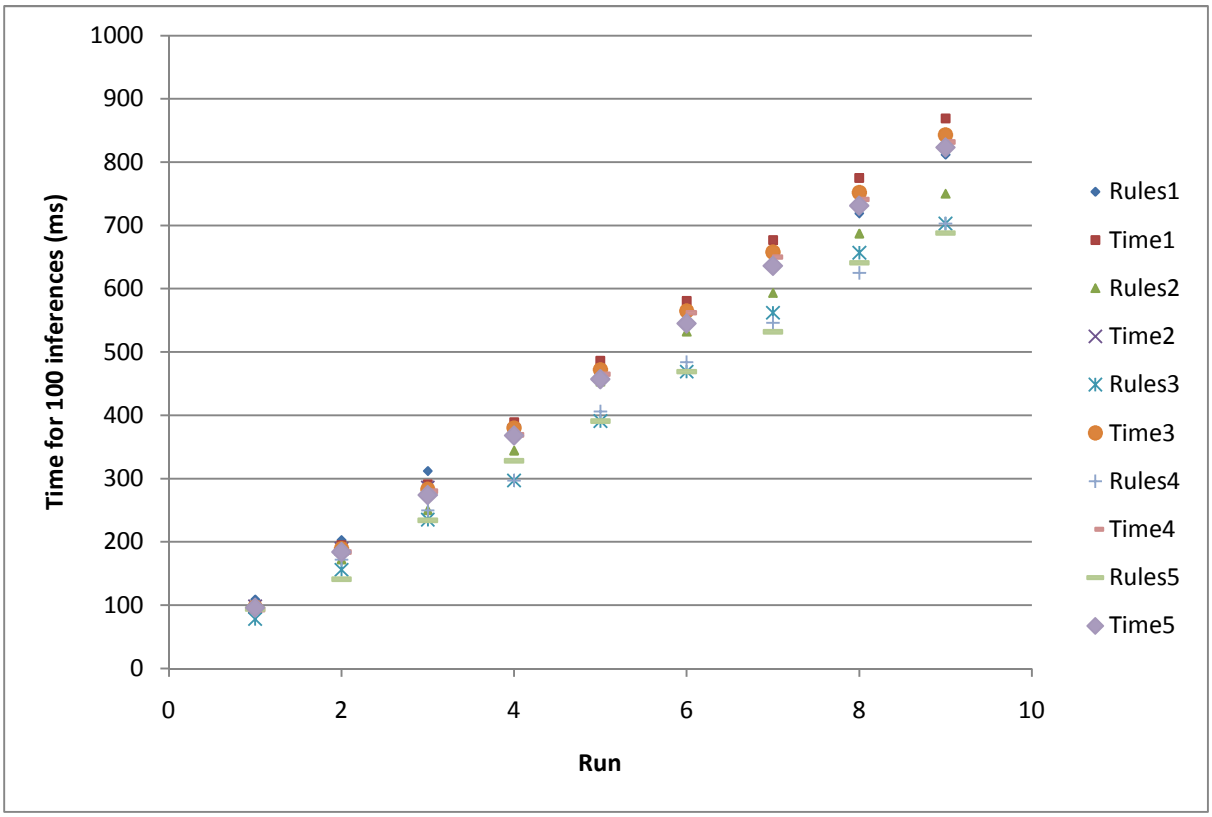

Figure 6-25 The number of rules in the system and the time taken to perform 1000 inferences at 9 separate points during the simulated stress test runs for 20% exceptions and 20% classifications.

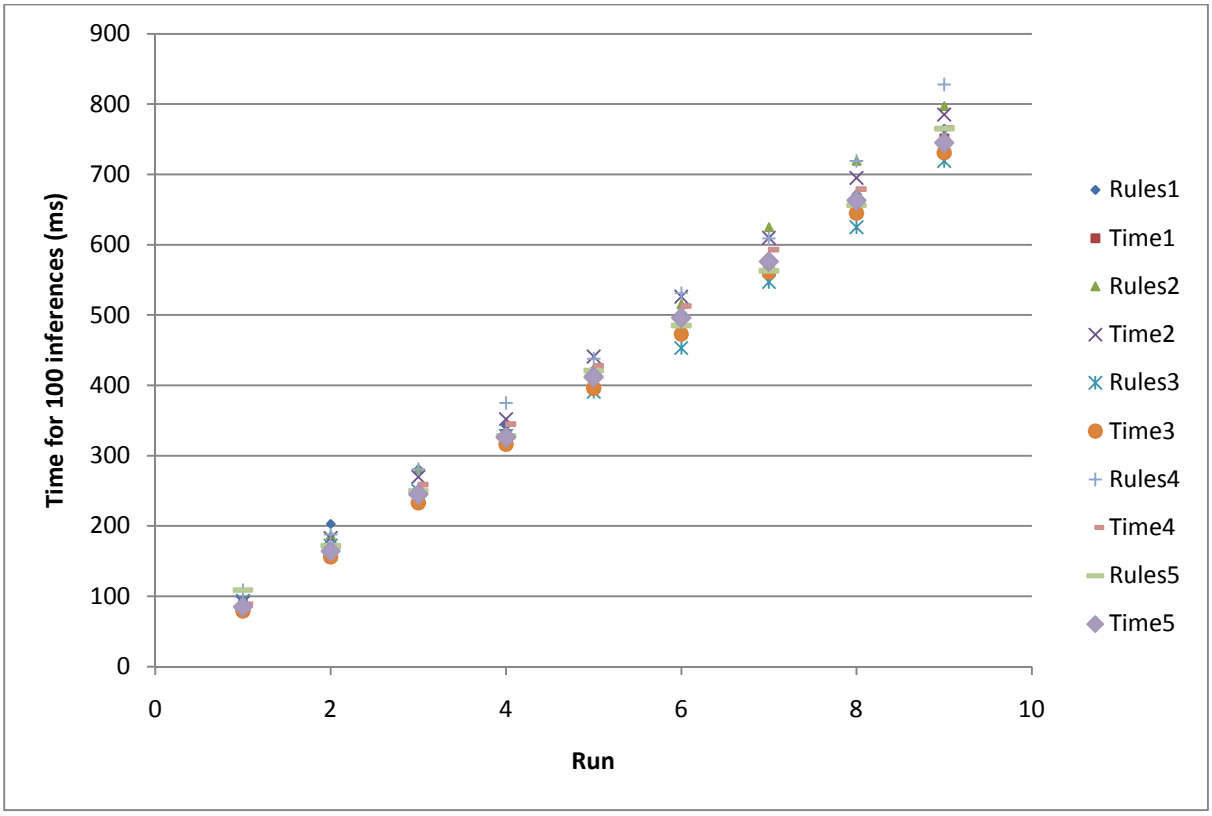

Figure 6-26 The number of rules in the system and the time taken to perform 1000 inferences at 9 separate points during the simulated stress test runs for 20% exceptions and 40% classifications.

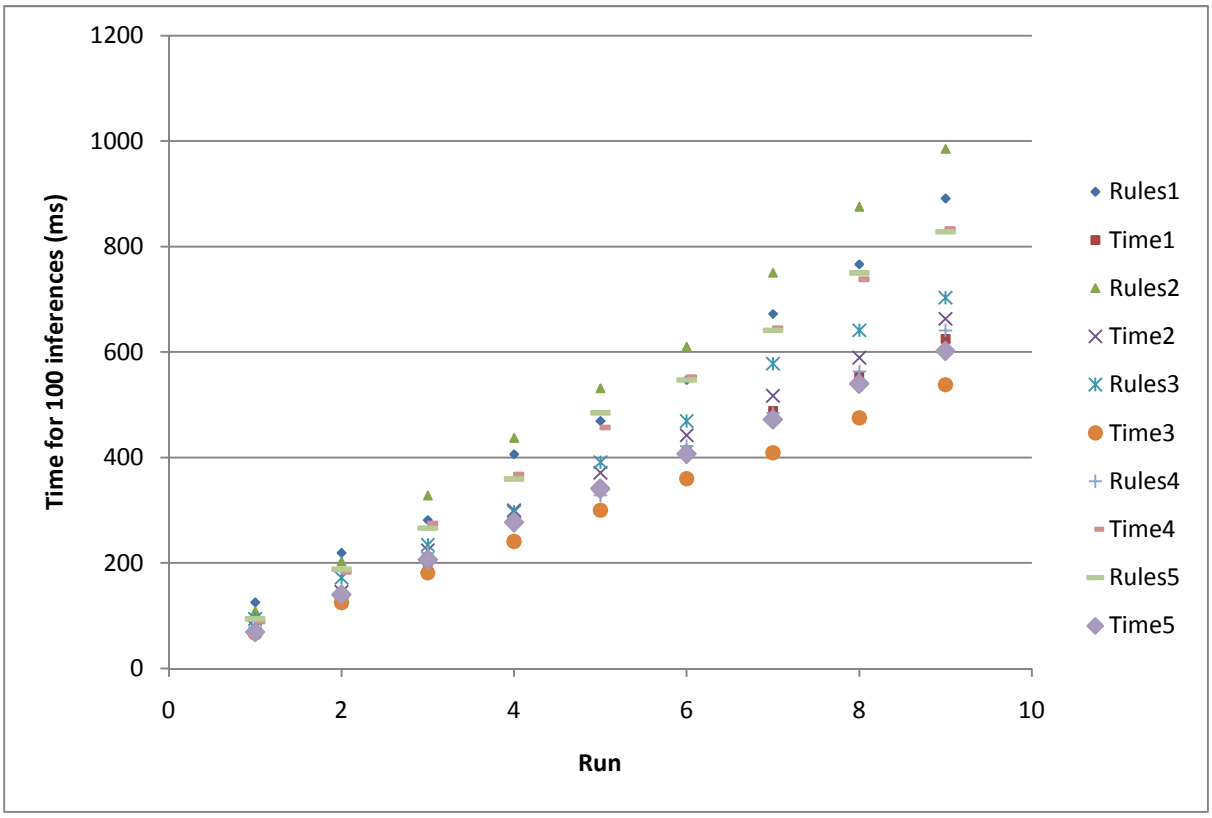

Figure 6-27 The number of rules in the system and the time taken to perform 1000 inferences at 9 separate points during the simulated stress test runs for 20% exceptions and 80% classifications.

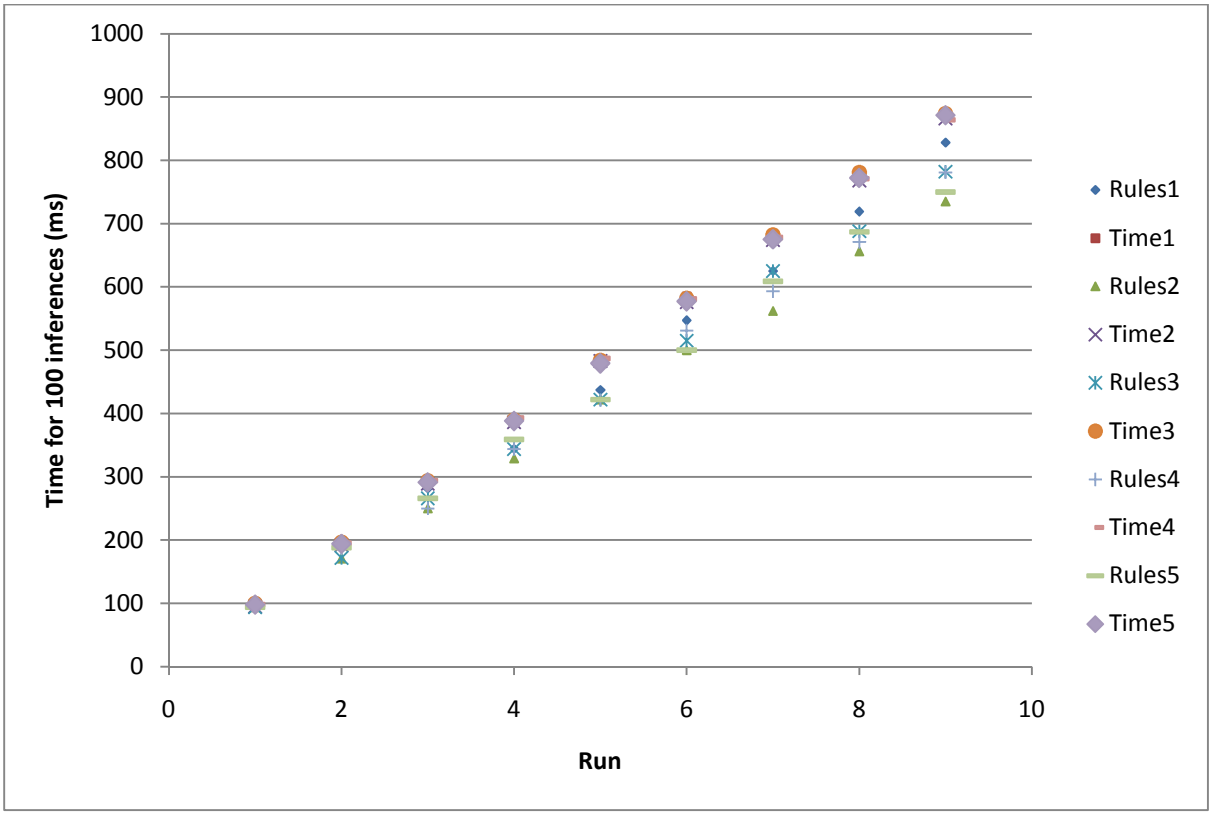

Figure 6-28 The number of rules in the system and the time taken to perform 1000 inferences at 9 separate points during the simulated stress test runs for 40% exceptions and 10% classifications.

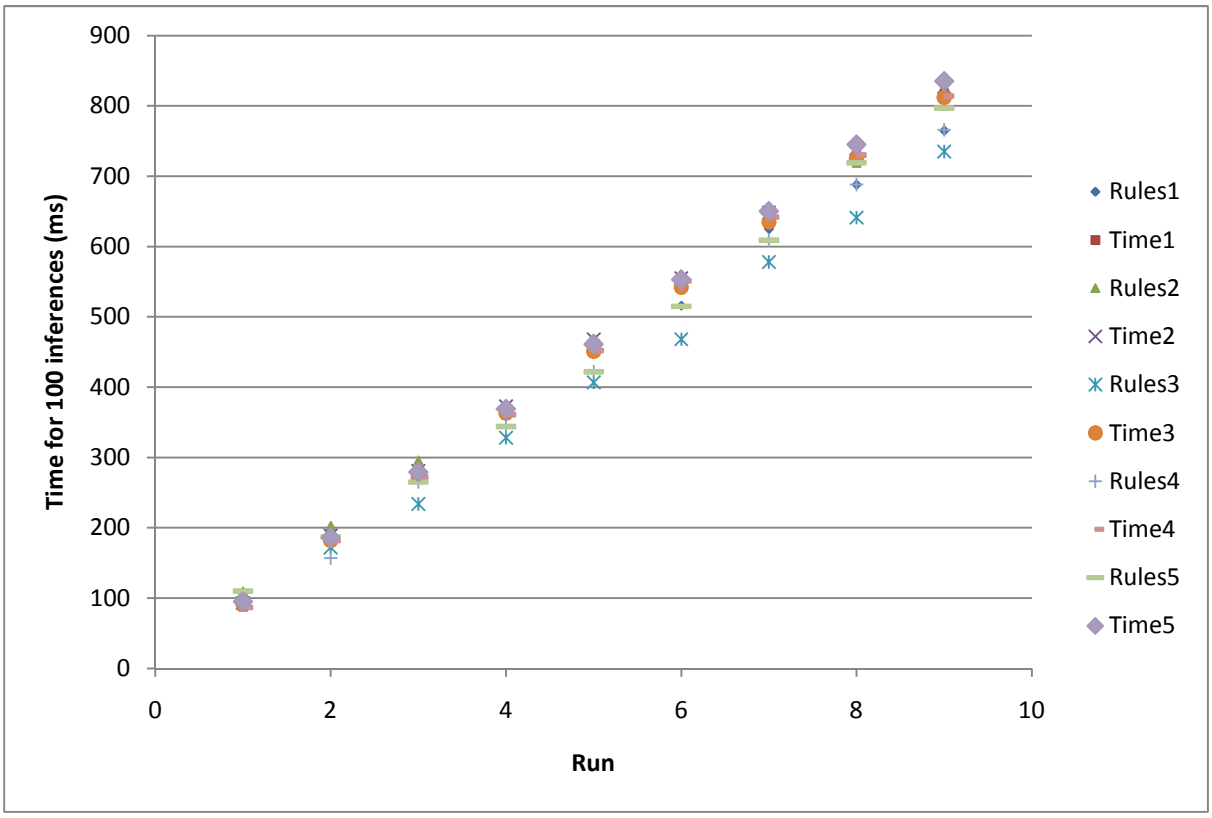

Figure 6-29 The number of rules in the system and the time taken to perform 1000 inferences at 9 separate points during the simulated stress test runs for 40% exceptions and 20% classifications.

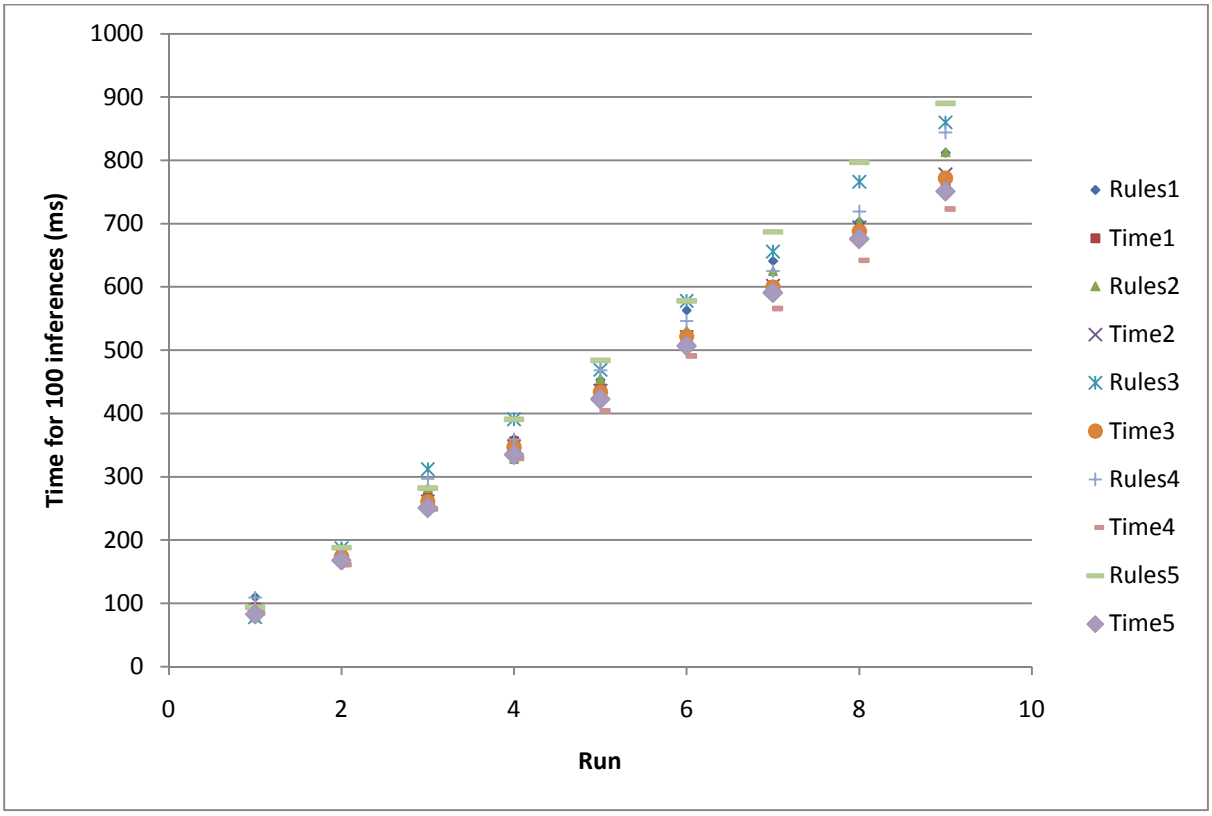

Figure 6-30 The number of rules in the system and the time taken to perform 1000 inferences at 9 separate points during the simulated stress test runs for 40% exceptions and 40% classifications.

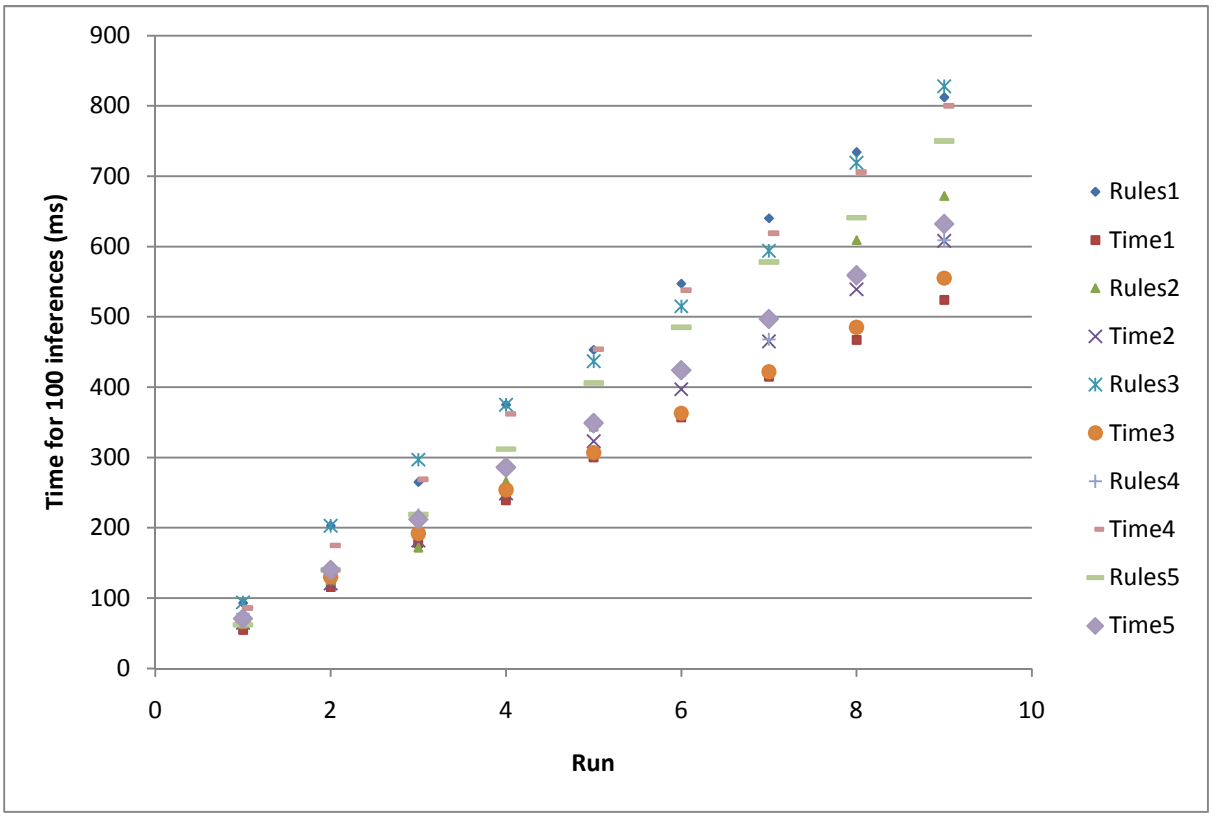

Figure 6-31 The number of rules in the system and the time taken to perform 1000 inferences at 9 separate points during the simulated stress test runs for 40% exceptions and 80% classifications.